

RECOMMENDATIONS

COMMISSION RECOMMENDATION (EU) 2023/1468

of 10 May 2023

on voluntary EU performance requirements for metal detection equipment used in public spaces (outside aviation)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 292 thereof,

Whereas:

- (1) Except for the field of civil aviation, Union law does not provide, at present, for harmonised performance requirements for metal detection equipment used for detection in public spaces. Such requirements differ between Member States, leading to uneven and not always sufficiently high levels of protection against security threats for the general public. Terrorists and other criminals may exploit the resulting vulnerabilities, including to stage attacks or conduct other criminal activities in Member States with a lower level of security in public spaces.
- (2) Terrorist attacks committed across the Union in recent years have predominantly taken place in public spaces, targeting members of the general public. In order to contribute to a sufficiently high level of protection against security threats in public spaces across the Union, voluntary performance requirements for metal detection equipment should be set out at Union level.
- (3) The detection equipment, including metal detection equipment, used in the field of civil aviation is subject to detailed requirements laid down in Commission Implementing Decision C(2015) 8005 ⁽¹⁾. Those requirements are well defined and offer a high level of protection in the field of civil aviation security. Therefore, that field should not be covered by this Recommendation. In addition, in the interest of clarity, it should be clarified that this Recommendation should not affect acts of Union law regulating safety aspects of metal detection equipment.
- (4) In the Counter-Terrorism Agenda for the EU ⁽²⁾, the Commission committed to support the development of voluntary EU requirements for detection technologies to ensure that they detect the threats which need to be detected while preserving the mobility of people. In pursuit of that commitment, the Commission established the Technical Working Group on detection performance requirements, composed of Member State experts, manufacturers and officials from a number of Commission services, and asked it to assist in developing voluntary EU performance requirements for metal detection equipment at Union level. This Recommendation, and in particular the voluntary requirements contained therein relating to product documentation and metal detection performance, is based on the preparatory work conducted by that working group.
- (5) Member States should therefore use the voluntary EU performance requirements in public procurement of metal detection equipment intended to be used in public spaces.
- (6) Member States should not be required to procure or use certain particular metal detection equipment in public spaces. The decisions on which metal detection equipment to procure or use in a given public space should continue to be taken exclusively by Member States, in accordance with Union law. The voluntary EU performance requirements should be used in the context of Member States' procurement activities to contribute to achieving a high level of detection performance by metal detection equipment used by Member States in public spaces across the Union.

⁽¹⁾ Commission Implementing Decision C(2015) 8005 laying down detailed measures for the implementation of the common basic standards on aviation security containing information, as referred to in point (a) of Article 18 of Regulation (EC) No 300/2008.

⁽²⁾ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. A Counter-Terrorism Agenda for the EU: Anticipate, Prevent, Protect, Respond (COM(2020) 795 final).

- (7) The voluntary EU performance requirements should set out several standards corresponding to different types of application of the metal detection equipment covered. The lowest standard concerns such equipment with lower sensitivity which is intended for application in mass transit or large gathering areas, where especially dangerous weapons need to be detected but where high throughput of persons and their items and low nuisance alarm rates are required. The highest standard concerns such equipment with higher sensitivity, which is intended for application where even the smallest threats need to be detected, and where a low throughput rate can be accommodated.
- (8) The voluntary EU performance requirements should not be understood as being intended to replace national performance standards for metal detection equipment, where such national standards exist. In particular, Member States should remain free to apply, in accordance with Union law, more stringent performance requirements for metal detection equipment used in public spaces.
- (9) This Recommendation should indirectly incentivise manufacturers to comply with the requirements in future production of metal detection equipment. Member States should therefore require in the procurement document for the metal detection equipment to be used for security-threat detection in public spaces that the tenderers include in the tender the product documentation and the declaration of conformity based on the manufacturer's own methodology to demonstrate the conformity of the metal detection equipment with the voluntary performance requirements contained in this Recommendation.
- (10) The use of metal detection equipment in public spaces may pose challenges from the viewpoint of the rights to protection of privacy and personal data. It is of crucial importance in relation to all activities connected to such use, including the procurement and operation of the equipment and any subsequent processing activities, to limit the intrusiveness as much as possible and, in any event, to act in compliance with Union law, in particular Regulation (EU) 2016/679 of the European Parliament and the Council ^(*), Directive 2016/680 of the European Parliament and of the Council ^(*) and the Charter of Fundamental Rights of the European Union.
- (11) Bearing in mind in particular the relevant technological developments in the area of security-threat detection, the voluntary performance requirements for metal detection equipment should be subject to review and adjustments where necessary. The Commission, with the assistance of the technical working group on detection performance requirements, will therefore closely follow technological and other relevant developments and regularly assess the need for adjustments of this Recommendation.
- (12) In the interest of effectiveness and transparency and, in particular, in view of the importance of addressing the security threats identified as soon as possible, Member States should be encouraged to give effect to this Recommendation and submit a report on their implementing measures to the Commission within a reasonable timeframe.
- (13) On the basis of those reports and any other relevant information, after a suitable time period, the progress made in giving effect to this Recommendation should be assessed, with a view, inter alia, to assessing whether Union legal acts with binding force on this subject matter are necessary,

HAS ADOPTED THIS RECOMMENDATION:

1. For the purposes of this Recommendation, the following definitions apply:
 - (a) 'metal detection equipment' means devices, consisting of either hand-held metal detectors or walk-through metal detectors, designed to detect the presence of metals on persons or items as part of physical security controls to detect objects of interest which may be used to cause security threats, such as explosive devices, firearms and sharp objects;

^(*) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC ('General Data Protection Regulation') (OJ L 119, 4.5.2016, p. 1).

^(*) Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA (OJ L 119, 4.5.2016, p. 89).

- (b) 'metal detection performance requirements' mean the technical specifications to be met by metal detection equipment, in particular as regards the results to be achieved during its operation;
 - (c) 'product documentation' means the documentation provided either on paper or in electronic form, or both, containing information on the metal detection equipment performance requirements;
 - (d) 'public spaces' mean any physical place that is accessible to the public, regardless of whether certain conditions for access may apply;
 - (e) 'self-declaration of conformity' means a declaration of conformity with the metal detection performance requirements that is issued by the manufacturer based on the manufacturer's own methodology;
2. Member States should require in the procurement document for metal detection equipment to be used for security-threat detection in public spaces, except in the field of aviation, that the tenderer include in the tender the product documentation meeting the requirements set out in Section 2 of the Annex.
 3. Member States should ensure that the metal detection equipment that they procure for the use of security-threat detection in public spaces comply with the metal detection performance requirements set out in Section 3 of the Annex, except when procuring such equipment for the use in the field of civil aviation.
 4. Member States should require in the procurement document for metal detection equipment to be used for security-threat detection in public spaces that the tenderer include in the tender a declaration of conformity with the performance requirements that is issued by the manufacturer, based on the manufacturer's own methodology.
 5. By 10 May 2024, Member States should take the necessary measures, in accordance with Union law, to give effect to this Recommendation.
 6. Member States should report to the Commission on their implementing measures by 10 November 2024.

Done at Brussels, 10 May 2023

For the Commission
Ylva JOHANSSON
Member of the Commission

ANNEX

Product documentation and metal detection equipment performance requirements**SECTION 1: DEFINITIONS**

For the purposes of this Annex, the following definitions apply:

- (1) 'active implantable medical device (AIMD)' means electrically powered medical devices, which can be implanted, worn, or both, and which typically employ electronic circuitry, for human physiological monitoring or to deliver medical treatment or therapy, such as drugs or electrical stimulation;
- (2) 'concept of operations (CONOPS)' means a document describing the characteristics of the equipment and the procedure or procedures for the correct operating thereof;
- (3) 'detector plane' means an imaginary plane (two-dimensional surface) that passes through the centre of the sensor region of the hand-held metal detector or walk-through metal detector that is parallel to the plane of the sensing element of the handheld metal detector or to the portal of the walk-through metal detector, and that bisects the sensor region into two symmetric halves;
- (4) 'divesture procedure' means a procedure regulating the practice that requires items, including both big objects, such as purses, bags, backpacks and other types of luggage, and smaller objects, such as watches, spectacles, belts and jewellery, that people carry with them to be removed and inspected separately, such as through X-rays;
- (5) 'hand-held metal detector (HHMD)' means a portable piece of metal detection equipment designed to be held in the hands of the person operating it, typically held by one hand;
- (6) 'improvised explosive device (IED)' means a bomb or similar explosive device constructed and deployed in ways other than in conventional military action;
- (7) 'measurement plane' means an imaginary plane (two-dimensional surface) over which the handheld metal detector or walk-through metal detector is tested, which is parallel to the detector plane and is referenced from the detector plane;
- (8) 'nuisance alarm rate (NAR)' means the rate of false alarm, that is, the rate of alarms on innocuous metal items calculated over the number of people that have transited the detection area of a walk-through metal detector;
- (9) 'throughput rate' means the maximum number of people and their items that can be screened per unit of time, typically one hour, and still have the detector correctly alarm on any appropriately-sized metal objects according to the security standard set;
- (10) 'test object' means an object that is used to test the performance of a handheld metal detector or walk-through metal detector, simulating the electromagnetic properties of an objects of interest which may be used to cause security threat, such as a weapon or an item that can be used to neutralise security devices;
- (11) 'security standard' means a standard that defines the set of all security threats that need to be detected, with the reference threat targets being representative of the set;
- (12) 'walk-through metal detector (WTMD)' means a stationary piece of metal detection equipment, typically permanently fixed in a particular location and constructed in an archway form;
- (13) 'mechanical interference' means effect caused on the performance of metal detector equipment by nearby stationary or moving metal structures or objects;
- (14) 'NIJ Standard 0601.02' means National Institute of Justice Standard 0601.02, published in Nicholas G. Paulter Jr., *Walk-Through Metal Detectors for Use in Concealed Weapon and Contraband Detection – NIJ Standard 0601.02*, U.S. Department of Justice, Office Justice Programs, National Institute of Justice, 2003;
- (15) 'NIJ Standard 0602.02' means National Institute of Justice Standard 0602.02, published in Nicholas G. Paulter Jr., *Hand-Held Metal Detectors for Use in Concealed Weapon and Contraband Detection – NIJ Standard 0602.02*, U.S. Department of Justice, Office Justice Programs, National Institute of Justice, 2003.

SECTION 2: PRODUCT DOCUMENTATION

The product documentation should comply with the following requirements, which apply in respect of both hand-held metal detectors (HHMD) and walk-through metal detectors (WTMD) unless otherwise indicated:

2.1. Physical dimensions of metal detection equipment

The overall size of the HHMD should be expressed as length (L) x width (W) x height (H) in millimetres (mm).

The passageway interior size and the overall exterior size of the WTMD should be expressed as length (L) x width (W) x height (H) in millimetres (mm).

2.2. Weight of metal detection equipment

The overall weight of the HHMD (including the battery) and of the WTMD should be expressed in grams (g) and kilograms (kg), respectively.

2.3. Power supply

Indication on power supply should include, where applicable, information on voltage of alternating current (VAC), frequency (Hz), current in amperes (A), and power in watt (W).

Tolerance should be expressed in percentage (%).

2.4. Battery

It should be indicated if a backup power supply (i.e. a battery) for the WTMD is included. If so, battery lifetime should be expressed in hours (h).

The HHMD should include a low battery level indicator. Battery lifetime should be expressed in hours (h);

2.5. IP rating

The Ingress Protection (IP) rating according to EN 60529 should be reported.

2.6. Operating environment

Operating temperature should be expressed in degree Celsius (°C).

Storage temperature should be expressed in degree Celsius (°C).

Humidity should be expressed in range in % (non-condensing).

Information should be provided concerning the measures required to avoid adverse electromagnetic interference, such as the recommended unit-to-unit distance in metres (m).

2.7. Zonal/positional alarms (for WTMD)

Information on the number of detection zones and their position under the portal of the WTMD should be provided as part of the product documentation.

2.8. Requirements for CE marking

The product documentation should contain information demonstrating compliance of the metal detection equipment with EU CE marking requirements. It is the responsibility of manufacturers to determine which rules apply for their products. Relevant provisions can include, for example:

- (a) Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment ⁽¹⁾;

⁽¹⁾ OJ L 174, 1.7.2011, p. 88.

- (b) Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC ⁽²⁾;
- (c) Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility ⁽³⁾;
- (d) Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits ⁽⁴⁾.

2.9. General safety requirements

The product documentation should contain information demonstrating that all reference standards and norms ensuring that the metal detection equipment can be used safely, both for the persons screened and for the persons operating the equipment, are complied with. Those reference standards and norms include the following, in the latest approved edition thereof:

- (a) Standards for active implantable medical devices (AIMDs)
 - EN 50527-1: Procedure for the assessment of the exposure to electromagnetic fields of workers bearing active implantable medical devices – Part 1: General
 - EN 50527-2-x: Procedure for the assessment of the exposure to electromagnetic fields of workers bearing active implantable medical devices
 - Part 2.1: Specific assessment for workers with cardiac pacemakers
 - Part 2.2: Specific assessment for workers with cardioverter defibrillators (ICDs)
 - Part 2.3: Specific assessment for workers with implantable neurostimulators
 - EN ISO 14708-X: Implants for surgery – Active implantable medical devices
 - Part 2: Cardiac pacemakers
 - Part 3: Implantable neurostimulators
 - Part 4: Implantable infusions pumps
 - Part 5: Circulatory support devices
 - Part 6: Particular requirements for active implantable medical devices intended to treat tachyarrhythmia (including implantable defibrillators)
 - Part 7: Particular requirements for cochlear and auditory brainstem implant systems
- (b) Standards for human exposure:
 - EN 50364: Product standard for human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 300 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar application
 - 1999/519/EC Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)
 - 2013/35/EU Directive on the minimum health and safety requirements regarding the exposure of workers to the risk arising from physical agent (electromagnetic fields)

2.10. Concept of operations

Concept of operations (CONOPS) should be provided as part of the product documentation. If different CONOPS are associated with different security standards, this should be clearly stated.

⁽²⁾ OJ L 153, 22.5.2014, p. 62.

⁽³⁾ OJ L 96, 29.3.2014, p. 79.

⁽⁴⁾ OJ L 96, 29.3.2014, p. 357.

SECTION 3: METAL DETECTION PERFORMANCE REQUIREMENTS

The metal detection equipment should meet the following metal detection performance requirements:

3.1. Security standards

The metal detection equipment should be set to the appropriate security standards among the following five standards:

3.1.1. *Standard 1 (for WTMD)*

This standard is intended for application where dangerous weapons need to be detected but where high throughput and low nuisance alarm rates are required. Applications include mass transit and large gathering areas.

Threat targets belonging to this category should include automatic rifles, machine guns and pressure cooker IEDs, such as assault rifles (with or without magazine), AK47, Beretta M12, Colt AR-15, pipe bomb housing (80 x 300 mm, and 4-liter stainless steel and aluminium pressure cookers IED, and similar sized objects.

Test objects simulating very large objects of interest should be used for this category. Divesture procedures should not be required and suitcases, bags or backpacks could be carried.

3.1.2. *Standard 2 (for WTMD)*

Threat targets belonging to this category should be medium-size handguns (e.g. Glock 17), and similar sized objects.

Test objects simulating large objects of interest should be used for this category, including full-size handguns as described by section 4.6, security level 2, test piece AM7, of the National Institute of Law Enforcement and Criminal Justice (NILECJ) standard for 'walk through metal detector for use in weapon detection,' (NILECJ-STD-0601.00).

Divesture procedures should not be required and small bags or backpacks could be carried.

3.1.3. *Standard 3*

Threat targets belonging to this category should be small handguns, from compact to pocket size firearms, and similar sized objects.

Test objects simulating medium-sized objects of interest should be used for this category, including handguns constructed of ferromagnetic or non-ferromagnetic metal as described in section 5.1 of NIJ Standard 0601.02 or NIJ Standard 0602.02. Replicas and mechanical drawings are included in NIJ Standard 0601.02 and NIJ Standard 0602.02.

Divesture procedures should be required. All metal items should be divested except wallets, watches, belts, shoes and small jewellery.

3.1.4. *Standard 4*

Threat targets belonging to this category should be knives having blade lengths exceeding 7,5 cm, and similar sized objects.

Test objects simulating small objects of interest should be used for this category, including knives having blade lengths exceeding 7,5 cm constructed of ferromagnetic or non-ferromagnetic metal as described in section 5,2 of NIJ Standard 0601.02 or NIJ Standard 0602.02. Replicas and mechanical drawings are included in NIJ Standard 0601.02 and NIJ Standard 0602.02.

Divesture procedures should be required. All metal items should be divested, except small watches, and small belts.

3.1.5. *Standard 5*

Threat items belonging to this category should be small weapons and include for example, stainless steel knives, handcuff keys, screwdriver bit, small calibre round, and similar sized objects.

Test objects simulating very small objects of interest should be used for this category, including small weapons concealed on a person that are constructed of either ferromagnetic or non-ferromagnetic metal as described in section 5.3 of NIJ Standard 0601.02 or NIJ Standard 0602.02. Replicas and mechanical drawings are included in NIJ Standard 0601.02 and in NIJ Standard 0602.02

Divesture procedures should be required. All metallic items should be divested.

3.2. **Detection sensitivity**

The metal detection equipment should detect objects of interest which may be used to cause security threats, carried on a person or in a bag that is worn, carried, or pulled along, independently of their orientation, trajectory and transit, or moving speed.

The detection sensitivity of that equipment may vary according to the standard fulfilled by the equipment described in section 3.1 of this Annex. Standard 1 requires equipment with the lowest sensitivity, while standard 5 requires equipment with the highest sensitivity.

3.2.1. *Orientation and moving speed (for HHMD)*

The HHMD should detect the test object representative for a particular security standard positioned in the appropriate measurement plane(s) for each allowed orientation by moving the detector at a speed between 0,05 and 2,0 m/s, as described in NIJ Standard–0602.02.

3.2.2. *Orientation, trajectory and transit speed (for WTMD)*

The minimum set of orthogonal orientations that should be used for testing a WTMD's sensitivity is described in ASTM International 'Standard Practice for Performance Evaluation of In-Plant Walk-Through Metal Detectors' C1309 – 97(2021).

The WTMD should detect the test object representative for a particular security standard at certain trajectory positions as described in NIJ Standard–0601.02.

All positions where the test object, due to its size and orientation, does not completely fit with the detector portal or that causes any portion of the test object to extend above the maximum height of the detection areas should be skipped.

The average transit speed of the test object when tested should be the normal walking pace (0,5 m/s – 1,3 m/s).

3.3. **Repeatability**

Detection repeatability should be ensured by the manufacturer's quality system and by testing different units of metal detection equipment in a subset of positions.

3.4. **Metal discrimination (for WTMD)**

Metal discrimination specifications for WTMD should require that the WTMD alarms on the appropriate object and not on an innocuous object. Discrimination should be evaluated by testing the WTMD in a real environment once the detection performances have been validated for the specific security standard. Appropriate divesture procedures could be required according to the security standard under evaluation. In order to assess discrimination, the alarm/total transits ratio on a number of people passing through the WTMD should be counted. The number of people that is required for this statistical survey should be at least one thousand.

3.5. **Throughput and nuisance alarm rate (for WTMD)**

The WTMD screening time per person should be lower than 2 seconds. The nuisance alarm rate (NAR) should be below 5 % following the divesture procedures described in section 3.1 of this Annex.

3.6. **Mechanical interference**

The detector should not alarm when it is adjusted to find the appropriately-sized test object.

3.7. Multiple metal objects interference (for WTMD)

For WTMD, the presence of metal objects other than the threat targets described by the selected security standard should not affect the detection of a threat item as it is passing through the portal.

3.8. Audible and visual alarms

The metal detection equipment should be provided with an audible and a visual alarm. The audible alarm should be noticeable at a range of 1 meter for HHMD and at a range of 2 meters for WTMD. A visual indicator should show for the HHMD that it is in operation and for the WTMD the strength of the signal detected.
